

COMMENTARY

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A united statement of the global chiropractic research community against the pseudoscientific claim that chiropractic care boosts immunity

Pierre Côté^{1,2,3*}, André Bussi  res^{4,5}, J. David Cassidy³, Jan Hartvigsen^{6,7}, Greg N. Kawchuk⁸, Charlotte Leboeuf-Yde⁹, Silvano Mior^{2,10}, Michael Schneider^{11,12} and and more than 140 signatories# call for an end to pseudoscientific claims on the effect of chiropractic care on immune function

Abstract

Background: In the midst of the coronavirus pandemic, the International Chiropractors Association (ICA) posted reports claiming that chiropractic care can impact the immune system. These claims clash with recommendations from the World Health Organization and World Federation of Chiropractic. We discuss the scientific validity of the claims made in these ICA reports.

Main body: We reviewed the two reports posted by the ICA on their website on March 20 and March 28, 2020. We explored the method used to develop the claim that chiropractic adjustments impact the immune system and discuss the scientific merit of that claim. We provide a response to the ICA reports and explain why this claim lacks scientific credibility and is dangerous to the public. More than 150 researchers from 11 countries reviewed and endorsed our response.

Conclusion: In their reports, the ICA provided no valid clinical scientific evidence that chiropractic care can impact the immune system. We call on regulatory authorities and professional leaders to take robust political and regulatory action against those claiming that chiropractic adjustments have a clinical impact on the immune system.

Keywords: Chiropractic, Spinal manipulation, Immunity, Pseudoscience, Coronavirus

Background

We are currently facing the greatest global public health crisis in a century. Fighting the coronavirus pandemic has required that we change the way we live and observe strict public health guidelines. This is necessary because, at this time, there are no effective vaccines, treatments

or cures for COVID-19 [1, 2]. Chiropractors, as members of the health care system, should disseminate the best available public health information to the public [3]. Any attempt to behave otherwise can be misleading and potentially dangerous to individual patients and the public at large.

On March 20, 2020, the International Chiropractors Association (ICA), a US based chiropractic organization, posted a report claiming that chiropractic adjustments can boost immune function with the implication that it might be helpful in preventing COVID-19 [4]. In their

* Correspondence: pierre.cote@uoit.ca

¹Faculty of Health Sciences, Ontario Tech University, Oshawa, Canada

²Centre for Disability Prevention and Rehabilitation at Ontario Tech University and CMCC, Oshawa, Canada

Full list of author information is available at the end of the article



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report, the ICA states that: “*Although there are no clinical trials to substantiate a direct causal relationship between the chiropractic adjustment and increased protection from the COVID-19 virus, there is a growing body of evidence that there is a relationship between the nervous system and the immune system*” and “*The observation that those who use chiropractic regularly and do not become ill with cold, flu, or other community shared illnesses is frequent within the profession and should not be ignored*” [4]. The ICA position directly contradicts the World Health Organization (WHO) that unequivocally states that “*there are no effective health interventions to prevent or treat coronavirus infections*” [1, 2], and the World Federation of Chiropractic (WFC) that states that “*there is no credible scientific evidence that chiropractic spinal adjustments/manipulations confers or boosts immunity*” [3].

On March 28, 2020, the ICA posted a revised report which reiterated the information included in the first report, with the addition of references supporting the link between chiropractic care and immune function [5]. In both reports, the ICA claims that their review of the literature confirms “*An association between spinal manipulation and the autonomic nervous system*” and that “*These studies suggest mechanisms by which spinal influences may mediate a clinically significant impact on immune function.*” Therefore, the main message of both reports is that chiropractic care can have a clinically meaningful impact on immune system function. We discuss the scientific validity of the claims made by the ICA.

Main body

We investigated the approach used by the ICA to support their claim that chiropractic adjustments impact the immune system. We compared the ICA claim to the findings and conclusions of one systematic review of the literature on the effect of spinal manual therapies on autonomic nervous system activity [6] and two systematic reviews on the efficacy and effectiveness of chiropractic treatment and manual therapy on the prevention and treatment of non-musculoskeletal disorders [7, 8]. Further, we used a list of warning signs of pseudoscience to assess the scientific merit of the claims [9]. Finally, 153 researchers from 11 countries (8 co-authors and 145 signatories) who are involved in research relevant to chiropractic reviewed and endorsed our response.

While the ICA states “*that no claims can be made about COVID-19 and chiropractic*”, their report implies that chiropractic adjustments can boost the immune system through its effect on the nervous system. The ICA claim rests on two assumptions: i) chiropractic adjustments have a beneficial effect on the nervous system and ii) chiropractic adjustments will improve the immune

system through the nervous system. These assumptions are not supported by robust evidence that chiropractic adjustments are efficacious or effective in improving immune function [6–8]. We consider that proclaiming the benefits of chiropractic adjustment/spinal manipulation on immunity during a pandemic is plainly irresponsible and demonstrates a lack of understanding of science, the coronavirus pandemic and public health risks.

Our critical review of the reports suggest that the ICA created a positive narrative for the effect of chiropractic adjustments and immune function report by selectively assembling a series of unconnected basic science studies [4, 5]. This strategy, called “emphasis on confirmation”, is a warning sign of pseudoscience [9]. Moreover, this approach fails to respect the established boundaries that exist between basic and clinical research. For example, two of the basic science studies included in the ICA report were led by one of the signatories of this commentary, Stephen Injean DC, PhD [10, 11]. According to Dr. Injean: “*No published studies have so far demonstrated the clinical significance of spinal manipulation and immune enhancement, our research included. Our studies were conducted in asymptomatic subjects, in vitro cellular models, and the outcomes were measured shortly following SMT. There are no parallels between our experimental research and clinical care.*” By only citing basic science experiments, the ICA appear to have overlooked the WHO guidance on implementation research, which clearly states that basic science experiments do not provide relevant justification for implementation of a health intervention [12].

Any health care intervention must be evaluated for its clinical efficacy and effectiveness in well-designed randomized controlled trials before it is implemented in clinical practice [12]. This requirement is not new; it was first implemented by the US Food and Drug Administration in 1962 [13]. With this in mind, it is all the more noteworthy that none of the studies cited in the ICA report provide evidence that chiropractic adjustments actually prevent the onset of infectious diseases in healthy individuals, or improve the health of patients suffering from a viral infection. We call on the ICA to explain why it does not adhere to internationally accepted standards of research implementation but instead rely on unconnected basic science studies when linking chiropractic care to immune system function.

The ICA also relied on anecdotal evidence to support their claim; this is another warning sign of pseudoscience [9]. For example, the authors state: “*The observation that those who use chiropractic regularly and do not become ill with colds, flu, and other community shared illnesses is frequent within the profession and should not be ignored*” [4, 5]. At best, this type of anecdotal

evidence is useful to generate research hypotheses to be tested in high quality randomized clinical trials. To our knowledge, the hypothesis that chiropractic care reduces the risk of becoming ill with viral colds, flu, and other community shared illnesses has never been properly tested. Any claims suggesting otherwise lack scientific merit and should not be used to justify treating patients with chiropractic adjustments.

Advancing extraordinary claims without providing extraordinary evidence should raise significant concerns about the scientific validity of the ICA's position. In their reports, the ICA claims that individuals who received chiropractic care during the 1918 Spanish flu pandemic were 51 to 91 times less likely to die than those who were treated by medical doctors [4, 5]. These effect sizes are too large to be trustworthy and are a red flag of pseudoscience, because extraordinary claims require extraordinary evidence [9]. Using data from a 100-year-old non-published, non-randomized controlled trial to suggest that chiropractic adjustments reduces mortality from the flu is scientifically and socially irresponsible.

Pseudoscience has the potential to mislead and misinform at any time; even more so in the midst of a pandemic when the public is vulnerable. The current coronavirus pandemic demands that we act responsibly by adopting sound public health practices as recommended by the WHO [14]. These include but are not restricted to regular handwashing, respiratory etiquette, physical distancing, staying at home, limiting trips outside the home except to obtain food or medicine and wearing a mask if symptomatic [14]. We have seen widespread adherence to the guidance around COVID-19, but as scientists and clinicians we have a public health duty to sound the alarm and denounce pseudoscientific claims such as the ones made by the ICA in its reports.

Conclusion

We call on regulatory authorities and professional leaders to take appropriate political and regulatory action against those making direct or indirect unsubstantiated claims that spinal adjustments can boost immunity, or benefit patients with infectious diseases, especially coronavirus infections. Above all, these actions must aim to protect the safety and well-being of patients and the public.

Abbreviations

FDA: Food and Drug Administration; ICA: International Chiropractors Association; WHO: World Health Organization; WFC: World Federation of Chiropractic

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#SIGNATORIES

The views and opinions expressed herein are those solely of the authors and may not represent the views of their institution.

1. Luc Aillet, Private practice, Ghent, Belgium
2. Carlo Ammendolia, University of Toronto, Toronto, Canada
3. Bodil Arnbak, University of Southern Denmark, Odense, Denmark
4. Iben Axen, Karolinska Institute, Stockholm, Sweden
5. Mirjam Baechler, University of Zurich, Zurich, Switzerland
6. Florian Barbier-Cazorla, Institut Franco-Européen de Chiropraxie, Ivry-sur-Seine, France
7. Gaëtan Barbier, Institut Franco-Européen de Chiropraxie, Toulouse, France
8. Cecilia Bergström, Umeå University, Umeå, Sweden
9. Amber Beynon, Murdoch University, Perth, Australia
10. Marc-André Blanchette, Université du Québec à Trois-Rivières, Trois-Rivières, Canada
11. Philip S Bolton, University of Newcastle, Callaghan, Australia
12. Alan Breen, AECC University College, Bournemouth, UK
13. Johanne Brinch, University of Southern Denmark and Spine Center of Southern Denmark, Odense, Denmark
14. Gert Bronfort, University of Minnesota, Minneapolis, USA
15. Benjamin Brown, Macquarie University, Sydney, Australia
16. Paul Bruno, University of Regina, Regina, Canada
17. Mikkel Brunggaard Konner, University of Southern Denmark and Spine Center of Southern Denmark, Odense, Denmark
18. Christopher Burrell, Macquarie University, Sydney, Australia
19. Jason W. Busse, McMaster University, Hamilton, Canada
20. David Byfield, Welsh Institute of Chiropractic University of South Wales Pontypridd, Wales UK
21. Marco Campello, NYU Robert I Grossman School of Medicine, New York, USA.
22. Carol Cancelliere, Ontario Tech University, Oshawa, Canada
23. Linda Carroll, University of Alberta, Edmonton, Canada
24. Christine Cedraschi, University of Geneva, Geneva, Switzerland
25. Charlene Chéron, French Chiropractic Association, Paris, France
26. Ngai Chow, Canadian Memorial Chiropractic College, Toronto, Canada
27. Henrik Wulff Christensen, Nordic Institute of Chiropractic and Clinical Biomechanics, Odense, Denmark
28. Stine Clausen, University of Southern Denmark, Odense, Denmark
29. Melissa Corso, Ontario Tech University, Oshawa, Canada
30. Matthew A. Davis, University of Michigan Medical School, Ann Arbor, USA
31. Marine Demortier, Institut Franco-Européen de Chiropraxie, Ivry-sur-Seine, France
32. Martin Descarreaux, Université du Québec à Trois-Rivières, Trois-Rivières, Canada
33. Diana De Carvalho, Memorial University of Newfoundland, St. John's, Canada
34. Katie de Luca, Macquarie University, Sydney, Australia
35. Annemarie de Zoete, Vrije University, Amsterdam, The Netherlands
36. Klaus Doktor, University of Southern Denmark, Odense, Denmark
37. Aron Downie, Macquarie University, Sydney, Australia
38. Alister du Rose, AECC University College, Bournemouth, UK
39. Andreas Eklund, Karolinska Institute, Stockholm, Sweden
40. Roger Engel, Macquarie University, Sydney, Australia
41. Mark Erwin, University of Toronto, Toronto, Canada
42. James E. Eubanks, University of Pittsburgh, Pittsburgh, USA
43. Roni Evans, University of Minnesota, Minneapolis, USA
44. Will Evans, Mississippi State University, Mississippi State, USA
45. Matthew Fernandez, Macquarie University, Sydney, Australia
46. Jonathan Field, University of Southampton, Southampton, UK
47. Gilles Fournier, Parker Institute, Copenhagen University Hospital at Bispebjerg and Frederiksberg, Denmark
48. Simon French, Macquarie University, Sydney, Australia
49. Signe Fuglkjaer, Private practice, Odense, Denmark
50. Olivier Gagey, University of Paris-Saclay, Orsay, France
51. Rosemary Giuriato, Macquarie University, Sydney, Australia
52. Jordan A. Gliedt, Medical College of Wisconsin, Milwaukee, USA
53. Christine Goertz, Duke University School of Medicine, Durham, USA
54. Guillaume Goncalves, Institut Franco-Européen de Chiropraxie, Ivry-sur-Seine, France
55. Diane Grondin, Canadian Memorial Chiropractic College, Toronto, Canada
56. Mark Gurden, Royal College of Chiropractors, Reading, UK
57. Mitchell Haas, University of Minnesota, Minneapolis, USA
58. Scott Haldeman, World Spine Care, Los Angeles, USA

59. Steen Harsted, University of Southern Denmark, Odense, Denmark
60. Lisbeth Hartvigsen, Private Practice, Odense, Denmark
61. Jill Hayden, Dalhousie University, Halifax, Canada
62. Cesar Hincapié, University of Zurich, Zurich, Switzerland
63. Jeffrey J. Hébert, University of New Brunswick, Fredericton, Canada
64. Bue Hesby, University of Southern Denmark, Odense, Denmark
65. Lise Hestbæk, University of Southern Denmark and Nordic Institute of Chiropractic and Clinical Biomechanics, Odense, Denmark
66. Sheilah Hogg-Johnson, Canadian Memorial Chiropractic College, Toronto, Canada
67. Maria A. Hondras, University of Kansas Medical Center, Kansas City, USA
68. Margaux Honoré, Institut Franco-Européen de Chiropraxie, Ivry-sur-Seine, France
69. Samuel Howarth, Canadian Memorial Chiropractic College, Toronto, Canada
70. H. Stephen Injevan, Canadian Memorial Chiropractic College, Toronto, Canada
71. Stanley Innes, Murdoch University, Perth, Australia
72. Pernille Marie Irgens, University of Oslo, Oslo, Norway
73. Craig Jacobs, Canadian Memorial Chiropractic College, Toronto, Canada
74. Hazel Jenkins, Macquarie University, Sydney, Australia
75. Alan Jenks, Vrije University, Amsterdam, The Netherlands
76. Tue Secher Jensen, University of Southern Denmark and Silkeborg Regional Hospital, Odense, Denmark
77. Melker Johansson, University of Southern Denmark, Odense, Denmark
78. Alice Kongsted, University of Southern Denmark and Nordic Institute of Chiropractic and Clinical Biomechanics, Odense, Denmark
79. Deborah Kopansky-Giles, Canadian Memorial Chiropractic College, Toronto, Canada
80. Rikke Kryger, University of Southern Denmark and Nordic Institute of Chiropractic and Clinical Biomechanics, Odense, Denmark
81. Arnaud Lardon, Institut Franco-Européen de Chiropraxie, Ivry-sur-Seine, France
82. Henrik Hein Lauridsen, University of Southern Denmark, Odense, Denmark
83. Brent Leininger, University of Minnesota, Minneapolis, USA
84. Nadège Lemeunier, Institut Franco-Européen de Chiropraxie, Toulouse, France
85. Christine Le Scanff, Université Paris-Saclay, Orsay, France
86. Eugene A. Lewis, Duke University School of Medicine, Durham, USA
87. Kathleen Linaker, Western Technical College, La Crosse, USA
88. Lise Lothe, Private Practice, Grimsstad, Norway
89. Andrée-Anne Marchand, Université du Québec à Trois-Rivières, Trois-Rivières, Canada
90. David McNaughton, Macquarie University, Sydney, Australia
91. Anne-Laure Meyer, Institut Franco-Européen de Chiropraxie, Ivry-sur-Seine, France
92. Peter Miller, AECC University College, Bournemouth, England
93. Anne Mølgaard, University of Southern Denmark, Odense, Denmark
94. Craig Moore, Macquarie University, Sydney, Australia
95. Donald R. Murphy, Brown University, Providence, USA
96. Corrie Myburgh, University of Southern Denmark, Odense, Denmark
97. Birgitte Myhrvold, University of Oslo, Oslo, Norway
98. Dave Newell, AECC University College, Bournemouth, UK
99. Genevieve Newton, University of Guelph, Guelph, Canada
100. Casper Nim, University of Southern Denmark and Spine Center of Southern Denmark, Odense, Denmark
101. Margareta Nordin, New York University, New York, USA
102. Luana Nyiro, University of Zurich, Zurich, Switzerland
103. Søren O'Neill, University of Southern Denmark and Spine Center of Southern Denmark, Odense, Denmark
104. Cecilie Øverås, University of Southern Denmark, Odense, Denmark
105. Isabelle Pagé, Université du Québec à Trois-Rivières, Trois-Rivières, Canada
106. Mégane Pasquier, Institut Franco-Européen de Chiropraxie, Toulouse, France
107. Charles W. Penza, Miami Veterans Administration Medical Center, Miami, USA
108. Stephen M. Perle, University of Bridgeport, Bridgeport, USA
109. Mathieu Picchiottino, Institut Franco-Européen de Chiropraxie, Ivry-sur-Seine, France
110. Mathieu Piché, Université du Québec à Trois-Rivières, Trois-Rivières, Canada
111. Erik Poulsen, University of Southern Denmark, Odense, Denmark
112. Jeffrey Quon, University of British Columbia, Vancouver, Canada
113. Tim Raven, University of Oslo, Oslo, Norway
114. Mana Rezai, Centre for Disability Prevention and Rehabilitation at Ontario Tech University and CMCC Toronto, Canada
115. Eric J. Roseen, Boston University School of Medicine, Boston, MA, USA
116. Sidney Rubinstein, Vrije University, Amsterdam, The Netherlands
117. Louis-Rachid Salmi, Université de Bordeaux, Inserm and CHU de Bordeaux, France
118. Petra Schweinhardt, University of Zurich, Zurich, Switzerland
119. Heather M. Shearer, University of Toronto, Toronto, Canada
120. Laura Sirucek, University of Zurich, Zurich, Switzerland
121. Delphine Sorondo, Institut Franco-Européen de Chiropraxie, Toulouse, France
122. Paula J. Stern, Canadian Memorial Chiropractic College, Toronto, Canada
123. Joel Stevans, University of Pittsburgh, Pittsburgh, USA
124. Mette Jensen Stochkendahl, University of Southern Denmark and Nordic Institute of Chiropractic and Clinical Biomechanics, Odense, Denmark
125. Kent Stuber, Canadian Memorial Chiropractic College, Toronto, Canada
126. Maja Stupar, Canadian Memorial Chiropractic College, Toronto, Canada
127. John Srbely, University of Guelph, Guelph, Canada
128. Michael Swain, Macquarie University, Sydney, Australia
129. Julita Teodorczyk-Injevan, Canadian Memorial Chiropractic College, Toronto, Canada
130. Jean Thérout, Murdoch University, Perth, Australia
131. Haymo Thiel, AECC University College, Bournemouth, UK
132. Lars Uhrenholt, University of Aarhus, Aarhus, Denmark
133. Anneke Verbeek, Private practice, Ghent, Belgium
134. Leslie Verville, Ontario Tech University, Oshawa, Canada
135. Karl Vincent, Institut Franco-Européen de Chiropraxie, Ivry-sur-Seine, France
136. Andrew L. Vitiello, CQUUniversity, Sydney, Australia
137. Dan Wang, Ontario Tech University, Oshawa, Canada
138. Kenneth A. Weber, Stanford University School of Medicine, Palo Alto, USA
139. James M. Whedon, Southern California University of Health Sciences, Whittier, USA
140. Jessica Wong, University of Toronto, Toronto, Canada
141. Francesca Wuytack, Trinity College, Dublin, Ireland
142. James Young, University of Southern Denmark, Odense, Denmark
143. Hainan Yu, Ontario Tech University, Oshawa, Canada
144. Dorte Ziegler, University of Southern Denmark and Spine Center of Southern Denmark, Odense, Denmark
145. Kristina Boe Dissing, University of Southern Denmark, Odense, Denmark

Authors' contributions

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Author details

¹Faculty of Health Sciences, Ontario Tech University, Oshawa, Canada.

²Centre for Disability Prevention and Rehabilitation at Ontario Tech University and CMCC, Oshawa, Canada. ³Division of Epidemiology, Dalla Lana School of Public Health, University of Toronto, Toronto, Canada.

⁴Département chiropratique, Université du Québec à Trois-Rivières, Trois-Rivières, Canada. ⁵School of Physical and Occupational Therapy, Faculty of Medicine McGill University, Montreal, Canada. ⁶Department of Sports Science and Clinical Biomechanics, University of Southern Denmark, Odense, Denmark. ⁷Nordic Institute of Chiropractic and Clinical Biomechanics, Odense, Denmark. ⁸Faculty of Rehabilitation Medicine, University of Alberta, Edmonton, Canada. ⁹Institute for Regional Health Research, University of Southern Denmark, Odense, Denmark. ¹⁰Canadian Memorial Chiropractic College, Toronto, Canada. ¹¹School of Health and Rehabilitation Sciences, University of Pittsburgh, Pittsburgh, USA. ¹²Clinical and Translational Science Institute, University of Pittsburgh, Pittsburgh, USA.

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